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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/806,709 | 03/23/2004 | Frederick A. Perner | 200308998-1 | 2670 |
| 22879 | 7590 | 01/04/2006 | EXAMINER | |
| HEWLETT PACKARD COMPANY P O BOX 272400, 3404 E. HARMONY ROAD INTELLECTUAL PROPERTY ADMINISTRATION FORT COLLINS, CO 80527-2400 | | | | LE, THONG QUOC |
| ART UNIT | | PAPER NUMBER | | |
| | | | | 2827 |

DATE MAILED: 01/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

(RU)

| | | | |
|------------------------------|-------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/806,709 | PERNER ET AL. | |
| | Examiner Thong Q. Le | Art Unit 2827 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on _____.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) 24-30 is/are allowed.
- 6) Claim(s) 1,2,5-11,14,17,19 and 22 is/are rejected.
- 7) Claim(s) 3-4,12-13,15-16,18,20-21,23,32 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 03/23/2004.
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____.

DETAILED ACTION

1. Claims 1-32 are presented for examination.

Information Disclosure Statement

2. This office acknowledges receipt of the following items from the Applicant:
Information Disclosure Statement (IDS) filed on 03/23/2004.
3. Information disclosed and list on PTO 1449 was considered.

Specification

4. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting

directly or indirectly from an international application filed before November 29, 2000.

Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

6. Claims 1-2,5-11,14,17,19,22 are rejected under 35 U.S.C. 102(e) as being anticipated by Odagawa et al. (U.S. Patent No. 6,538,297).

Regarding claims 1, 5, 14,19, Odagawa et al. disclose soft -reference three conductor magnetic memory storage device (Figure 1) comprising:

an electrically conductive first sense/write conductor (15);
an electrically conductive second sense conductor (14) ;
a soft-reference spin valve memory (SVM) cell (21) in electrical contact with and located between the first sense/write conductor and the second sense conductor, the SVM cell comprising a material with an alterable orientation of magnetization; and
an electrically conductive third write column (17) substantially proximate to and electrically isolated from the second sense conductor.

Regarding claim 2, Odagawa et al. disclose wherein each SVM cell includes at least one ferromagnetic data layer (Figure 1, 19, Column 4, lines 9-10) characterized by an alterable orientation of magnetization, and an intermediate layer (Figure 1, 12) in contact with the at least one ferromagnetic data layer; and at least one ferromagnetic soft-reference layer (figure 1, 13) in contact with the intermediate layer, opposite from the at least one ferromagnetic data layer, the at least one ferromagnetic soft-reference layer having a non-pinned orientation of magnetization and lower coercivity than the at least one ferromagnetic data layer (Column 4, lines 1-14).

Regarding claims 6-11, 17,22, Odagawa et al. disclose the third write column conductors are electrically isolated from the second sense conductors by physical space (Figure 2B, 14,17), and the third write column conductors are electrically isolated from the second sense conductors by a dielectric therebetween (Figure 1, 16), and wherein the third write column conductors are substantially parallel to the second sense conductors (Figure 2B, 14, 17), and wherein the third write column conductors are substantially surrounded by a ferromagnetic cladding (Figure 4A, 17), and wherein the first sense/write conductors are substantially surrounded by a ferromagnetic cladding (Figure 1, 18), and wherein each SVM memory cell (Figure 1, 21) includes at least one ferromagnetic data layer (Figure 1, 19) characterized by an alterable orientation of magnetization, and an intermediate layer in contact with the data layer; and at least one ferromagnetic soft-reference layer in contact with the intermediate layer (Figure 1, 12), opposite from the data layer, the soft-reference layer having a non-pinned orientation (Figure 1, 13) of magnetization and lower coercivity than the data layer (Column 4, lines 1-46).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Odagawa et al (U.S. Patent No. 6,538,297) as applied to claim 31 above, and further in view of Ohmori et al. (Pub. U.S. 2002/0067645).

Odagawa et al. as described in 102 rejection above, fails to disclose a main board and one of CPU. However, Ohmori et al. disclose a main board and a CPU [0035]. Central processing unit (CPU) and a main board are provided in a computer system to use for controlling and joined devices. Therefore, it would have been obvious to one of ordinary skill in the art to provide one CPU and a main board in a computer system to obtain the invention as specified in claim 31.

Allowable Subject Matter

9. Claims 3-4, 12-13, 15-16, 18, 20-21, 23, 32 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 3-4, 12-13, 15-16, 18, 20-21, 23, 32 include allowable subject matter since the prior art made of record and considered pertinent to the applicant's disclosure does not teach or suggest the claimed limitations. Odagawa (U.S. Patent No. 6,538,297), and others, does not teach the claimed invention having wherein the SVM cell is operable during a read operation such that the at least one ferromagnetic soft-reference layer is oriented-on-the-fly to a desired orientation by a sense magnetic field generated by at least one sense current flowing in the third write column conductor, the magnetic field being insufficient to affect the orientation of the at least one ferromagnetic

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data layer of the SVM cell as claims 3, 12 , 15, 20, 32 disclosed, and wherein the at least one ferromagnetic data layer and the at least one ferromagnetic soft-reference layer are each further characterized as having a hard axis and an easy axis, the easy axis of the data layer being substantially parallel to the easy axis of the at least one ferromagnetic soft- reference layer, and the third write column conductor being substantially transverse to the easy axis of the at least one ferromagnetic data layer and the at least one ferromagnetic soft-reference layer as claims 4, 13, 16, 18, 21, 23 disclosed.

10. Claims 24-30 are allowed.

Claims 24-30 include allowable subject matter since the prior art made of record and considered pertinent to the applicant's disclosure does not teach or suggest the claimed limitations. Odagawa (U.S. Patent No. 6,538,297), and others, does not teach the claimed invention having a method of self referenced non-destructively determining a data value in a magnetic memory storage device having a plurality of soft-reference layer three conductor SVM cells as disclosed in claims 24-30.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thong Q. Le whose telephone number is 571-272-1783. The examiner can normally be reached on 8:00am-5:00pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Zarabian Amir can be reached on 571-272-1852. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Thong Q. Le
Primary Examiner
Art Unit 2827